

Company: Company

Project: IE HECTOR MANUEL VIDES BALLESTEROS (MÓDULO 6)

File: C:\IE REGIDOR\MOD6.rcb

Engineer: Name

9:47:04 a. m. 27/06/2025

DRIFT-BASED FLEXIBLE-STORY CHECK - NSR-10

Story	E A R T H Q U A K E - X				E A R T H Q U A K E - Y			
	Δ_{cm}^*	Δ_{cm}/h	Δ_n/Δ_{n+1}	Irregular	Δ_{cm}^*	Δ_{cm}/h	Δ_n/Δ_{n+1}	Irregular
2	0.8384	0.0038	-	-	0.1643	0.0007	-	-
1	0.9682	0.0024	1.1547	NO	0.3687	0.0009	2.2432	?

* Δ_{cm} : Story drift at center of mass (cm) $n/n+1 \Delta/h$: $(\Delta_{cm}/h)_n/(\Delta_{cm}/h)_{n+1}$: Ratio between drift ratio at CM of a story and that of story aboveVertical irregularities type 1a, 1b, 2 and 3 do not apply if drift ratio of each story is less than 1.3 that of next story above (i.e. $n/n+1 \Delta/h < 1.3$). Story drift ratio of top two stories are not considered**Stiffness-based flexible story check is not required!****It can be considered that vertical irregularities type 1aA, 1bA, 2A and 3A DO NOT EXIST !**Use: $\phi_a = 1$ **STORY STIFFNESS -BASED ON DESIGN SHEAR**

Story	X - D I R E C T I O N			Y - D I R E C T I O N		
	Shear X	Δ_{cm} X	Kx	Shear Y	Δ_{cm} Y	Ky
2	71.5	0.8384	85.3	58.2	0.1643	353.9
1	202.9	0.9682	209.6	202.9	0.3687	550.4

Shear: Design Shear, in ton

 Δ_{cm} : Drift at center of mass, in cm

K: Story stiffness, in ton/cm

STIFFNESS-BASED FLEXIBLE-STORY CHECK - NSR-10

Story	E A R T H Q U A K E - X				E A R T H Q U A K E - Y			
	Kn	Kn/Kn+1	Kn/Kavg3	Irregular	Kn	Kn/Kn+1	Kn/Kavg3	Irregular
2	85.3	-	-	-	353.9	-	-	-
1	209.6	2.456	-	NO	550.4	1.555	-	NO

Kn: Stiffness of story n, in ton/cm

Kn/Kn+1: Ratio between stiffness of story n and that of store above n

Kn/Kavg3: Ratio between stiffness of story n and average stiffness of three stories above n

Stiffness-soft story irregularity is considered to exist if $Kn/Kn+1 < 0.7$ or $Kn/Kavg3 < 0.8$ Stiffness-EXTreme soft story irregularity is considered to exist if $Kn/Kn+1 < 0.6$ or $Kn/Kavg3 < 0.7$ **Stiffness-flexible story irregularity types 1aA and 1bA do NOT exist.**

Notes:

The determination stiffness-soft story irregularity (vertical structural irregularity types 1a and 1b) is conducted based on story-stiffness computed for the design seismic shear distribution, according to FEMA's NEHRP Recommended Provisions for Seismic Regulations for New Buildings and other Structures, Provisions and Commentary ed. 1994, 1997, 2000, 2003, 2009, which is applicable to the following building codes derived from the above documents: (USA) IBC-03/06, ASCE 7-05/10, CBC-01/07, UBC-97, (COLOMBIA) NSR-10, (PAN) REP-2004/2014/2021 (DOM) R-001, (GUA) NSE10.

WEIGHT (MASS) IRREGULARITY CHECK

Floor	Wn	Wn/Wn+1	Wn/Wn-1	Irregular
3	72.2	-	0.307	-

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Floor	Wn	Wn/Wn+1	Wn/Wn-1	Irregular
2	235.5	-	-	-

Wn: Effective weight of floor n, in ton
Wn/Wn+1: Ratio between weight of floor n and weight of floor above n
Wn/Wn-1: Ratio between weight of floor n and weight of floor below n

Weight (mass) irregularity is considered to exist if effective weight of any floory is more than 1.5 times the effective weight of an adjacent floor. That is, if $W_n/W_{n+1} > 1.5$ or $W_n/W_{n-1} > 1.5$.
A roof that is lighter than the floor below is not considered.

Weight (mass) irregularity (2A) does NOT exist.